(Optically scannable clean copy)

CLAIMS

We claim:

1. An impact tool comprising:

A shaft having a striking end and a working end; and

A shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end to avoid direct metal-to-metal contact, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

2. The impact tool according to claim 1, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said shaped polymeric material so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

3. The impact tool according to claim 2, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

4. The impact tool according to claim 3, further comprising:

said polymeric material being MINLON.

5. The impact tool according to claim 2, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

6. The impact tool according to claim 5, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

7. The impact tool according to claim 6, further comprising:

said polymeric material being MINLON.

8. The impact tool according to claim 5, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

9. The impact tool according to claim 8, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

10. The impact tool according to claim 9, further comprising:

said polymeric material being MINLON.

11. The impact tool according to claim 5, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

12. The impact tool according to claim 11, further comprising:

said shaped polymeric material being selected from the group of polymeric materials

reinforced by fiber or mineral.

13. The impact tool according to claim 12, further comprising:

said polymeric material being MINLON.

14. The impact tool according to claim 11, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

15. The impact tool according to claim 14, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

16. The impact tool according to claim 15, further comprising:

said polymeric material being MINLON.

17. The impact tool according to claim 11, said grip having a flange for hand protection.

18. The impact tool according to claim 17, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

19. The impact tool according to claim 18, further comprising:

said polymeric material being MINLON.

20. The impact tool according to claim 17, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

21. The impact tool according to claim 20, further comprising:

said shaped polymeric material being selected from the group of polymeric materials

reinforced by fiber or mineral.

22. The impact tool according to claim 21, further comprising:

said polymeric material being MINLON.

23. An impact tool comprising:

A shaft having a striking end and a working end; and

A shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end to avoid direct metal-to-metal contact, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus calculated according to the following formula:

said modulus times said cross-sectional area for transmitting impact upon the impact end area divided by said thickness through said cross-sectional area= X

X to be of a value to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

24. The impact tool according to claim 23, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said shaped polymeric material so that resulting

sound and vibration is of lower dB, and less harmful frequency ranges to humans.

25. The impact tool according to claim 24, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

26. The impact tool according to claim 25, further comprising:

said polymeric material being MINLON.

27. The impact tool according to claim 24, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

28. The impact tool according to claim 27, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

29. The impact tool according to claim 28, further comprising:

said polymeric material being MINLON.

30. The impact tool according to claim 27, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

31. The impact tool according to claim 30, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

32. The impact tool according to claim 31, further comprising:

said polymeric material being MINLON.

33. The impact tool according to claim 27, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

34. The impact tool according to claim 33, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

35. The impact tool according to claim 34, further comprising:

said polymeric material being MINLON.

36. The impact tool according to claim 33, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

37. The impact tool according to claim 36, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

38. The impact tool according to claim 37, further comprising:

said polymeric material being MINLON.

39. The impact tool according to claim 33, said grip having a flange for hand protection.

40. The impact tool according to claim 39, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

41. The impact tool according to claim 40, further comprising:

said polymeric material being MINLON.

42. The impact tool according to claim 39, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

43. The impact tool according to claim 42, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

44. The impact tool according to claim 43, further comprising:

said polymeric material being MINLON.

45. An impact tool comprising:

A shaft having a striking end and a working end, said working end being a chisel; and

A shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area,

said working end being a chisel having a decreased included angle from a standard 65-70 degree included angle;

said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus in combination with said decreased included angle of said chisel to preserve at least 75% cutting effectiveness compared to cutting effectiveness of a chisel with a standard 65-70 degree included angle without said shaped polymeric material disposed adjacent to said striking end.

46. The impact tool according to claim 45, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said shaped polymeric material so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

47. The impact tool according to claim 46, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

48. The impact tool according to claim 47, further comprising:

said polymeric material being MINLON.

49. The impact tool according to claim 46, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

50. The impact tool according to claim 49, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

51. The impact tool according to claim 50, further comprising:

said polymeric material being MINLON.

52. The impact tool according to claim 49, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

53. The impact tool according to claim 52, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

54. The impact tool according to claim 53, further comprising:

said polymeric material being MINLON.

55. The impact tool according to claim 49, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

56. The impact tool according to claim 55, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

57. The impact tool according to claim 56, further comprising:

said polymeric material being MINLON.

58. The impact tool according to claim 55, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

59. The impact tool according to claim 58, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

60. The impact tool according to claim 59, further comprising:

said polymeric material being MINLON.

61. The impact tool according to claim 55, said grip having a flange for hand protection.

62. The impact tool according to claim 61, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

63. The impact tool according to claim 62, further comprising:

said polymeric material being MINLON.

64. The impact tool according to claim 61, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

65. The impact tool according to claim 64, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

66. The impact tool according to claim 65, further comprising:

said polymeric material being MINLON.

67. An impact tool comprising:

a shaft having a striking end and a working end; and

a shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end, said shaped polymeric material having a striking end area of said shaped polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said shaped polymeric material disposed adjacent to said striking end; and

having at least one cap for securing said shaped polymeric material to be impacted having a shape, said at least one cap comprised of a spall-inhibiting material having an aperture exposing said impact end area.

68. The impact tool according to claim 67, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

69. The impact tool according to claim 68, further comprising:

said polymeric material being MINLON.

70. The impact tool according to claim 67, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

71. The impact tool according to claim 70, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

72. The impact tool according to claim 71, further comprising:

said polymeric material being MINLON.

73. The impact tool according to claim 67, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

74. The impact tool according to claim 73, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

75. The impact tool according to claim 74, further comprising:

said polymeric material being MINLON.

76. The impact tool according to claim 73, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

77. The impact tool according to claim 76, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

78. The impact tool according to claim 77, further comprising:

said polymeric material being MINLON.

79. The impact tool according to claim 73, said grip having a flange for hand protection.

80. The impact tool according to claim 79, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

81. The impact tool according to claim 80, further comprising:

said polymeric material being MINLON.

82. The impact tool according to claim 79, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

83. The impact tool according to claim 82, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

84. The impact tool according to claim 83, further comprising:

said polymeric material being MINLON.

85. A removable cap to be placed on an impact tool having a striking end, comprising:

a shaped polymeric material to be impacted having a shape and disposed and secured adjacent to said striking end, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said removable cap material disposed adjacent to said striking end.

86. The removable cap according to claim 85, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said removable cap so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

87. The removable cap according to claim 86, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

88. The removable cap according to claim 87, further comprising:

said polymeric material being MINLON.

89. The removable cap according to claim 86, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being

comprised of a spall-inhibiting material having an aperture exposing said impact end area.

90. The removable cap according to claim 89, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

91. The removable cap according to claim 90, further comprising:

said polymeric material being MINLON.

92. The removable cap according to claim 89, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

93. The removable cap according to claim 92, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

94. The removable cap according to claim 93, further comprising:

said polymeric material being MINLON.

95. The removable cap according to claim 89, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

96. The removable cap according to claim 95, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

97. The removable cap according to claim 96, further comprising:

said polymeric material being MINLON.

98. The removable cap according to claim 95, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

99. The removable cap according to claim 98, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

100. The removable cap according to claim 99, further comprising:

said polymeric material being MINLON.

101. The removable cap according to claim 95, said grip having a flange for hand protection.

102. The removable cap according to claim 101, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

103. The removable cap according to claim 102, further comprising:

said polymeric material being MINLON.

104. The removable cap according to claim 101, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

105. The removable cap according to claim 104, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

106. The removable cap according to claim 105, further comprising:

said polymeric material being MINLON.

107. A removable cap to be placed on an impact tool having a striking end, comprising:

a shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end, said shaped polymeric material having a striking end area of said shaped polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said shaped polymeric material disposed adjacent to said striking end; and

having at least one overcap for securing said shaped polymeric material to be impacted having a shape, said at least one overcap comprised of a spall-inhibiting material having an aperture exposing said impact end area.

108. The removable cap according to claim 107, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

109. The removable cap according to claim 108, further comprising:

said polymeric material being MINLON.

110. The removable cap according to claim 107, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

111. The removable cap according to claim 110, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

112. The removable cap according to claim 111, further comprising:

said polymeric material being MINLON.

113. A method of making a protective cap for an impact tool, said impact tool having a striking end, and a working end, comprising the following steps:

molding a shaped polymeric material of thickness and cross-sectional area and modulus interior to a cap having an interior cavity to accommodate said shaped polymeric material and being a cap that can be driven onto said striking end,

said interiorly shaped polymeric material having a striking end area adjacent to said striking end, and an impact end area to be impacted roughly opposite said striking end area,

said interiorly shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

114. The method according to the method of claim 113, said shaped polymeric material being a thermoplastic material.

115. The method according to the method of claim 113, said shaped polymeric material being a thermosetting material.

116. The method according to the method of claim 113, said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

117. The method according to the method of claim 113, said polymeric material being

MINLON.

118. The method according to the method of claim 113, said cap being made of a spall-inhibiting material selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

119. The method according to the method of claim 113, said cap for securing said shaped polymeric material, being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

120. The method according to the method of claim 119, said polymeric material being MINLON.

121. A method of manufacturing an impact tool having an impact end, which impact end has an impact end area, comprising the following steps:

mounting a shaped polymeric material of sufficient cross-sectional area for transmitting impact upon the impact end area from a striking end area roughly opposite said impact end area on said shaped polymeric material, said shaped polymeric material being of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

122. A method of manufacturing an impact tool having a head for receiving or conveying force and an impact end, which impact end has an impact end area, comprising the following steps:

mounting a shaped polymeric material of sufficient cross-sectional area for transmitting impact upon the impact end area from a striking end area roughly opposite said impact end area on said shaped polymeric material, said shaped polymeric material being of sufficient thickness

through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end;

and thereafter, mounting a grip having an aperture through which said shaped polymeric material protrudes over said shaped polymeric material and at least partially onto said head.

(Redline of amended claims-only Claim 45 amended)

(All claims pending)

CLAIMS

We claim:

1. An impact tool comprising:

A shaft having a striking end and a working end; and

A shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end to avoid direct metal-to-metal contact, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

2. The impact tool according to claim 1, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said shaped polymeric material so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

3. The impact tool according to claim 2, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

4. The impact tool according to claim 3, further comprising:

said polymeric material being MINLON.

5. The impact tool according to claim 2, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

6. The impact tool according to claim 5, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

7. The impact tool according to claim 6, further comprising:

said polymeric material being MINLON.

8. The impact tool according to claim 5, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

9. The impact tool according to claim 8, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

10. The impact tool according to claim 9, further comprising:

said polymeric material being MINLON.

11. The impact tool according to claim 5, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

12. The impact tool according to claim 11, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

13. The impact tool according to claim 12, further comprising:

said polymeric material being MINLON.

14. The impact tool according to claim 11, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

15. The impact tool according to claim 14, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

16. The impact tool according to claim 15, further comprising:

said polymeric material being MINLON.

17. The impact tool according to claim 11, said grip having a flange for hand protection.

18. The impact tool according to claim 17, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

19. The impact tool according to claim 18, further comprising:

said polymeric material being MINLON.

20. The impact tool according to claim 17, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

21. The impact tool according to claim 20, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

22. The impact tool according to claim 21, further comprising:

said polymeric material being MINLON.

23. An impact tool comprising:

A shaft having a striking end and a working end; and

A shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end to avoid direct metal-to-metal contact, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus calculated according to the following formula:

said modulus times said cross-sectional area for transmitting impact upon the impact end area divided by said thickness through said cross-sectional area= X

X to be of a value to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

24. The impact tool according to claim 23, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower

frequency ranges than said impact tool without said shaped polymeric material so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

25. The impact tool according to claim 24, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

26. The impact tool according to claim 25, further comprising:

said polymeric material being MINLON.

27. The impact tool according to claim 24, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

28. The impact tool according to claim 27, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

29. The impact tool according to claim 28, further comprising:

said polymeric material being MINLON.

30. The impact tool according to claim 27, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

31. The impact tool according to claim 30, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

32. The impact tool according to claim 31, further comprising:

said polymeric material being MINLON.

33. The impact tool according to claim 27, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

34. The impact tool according to claim 33, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

35. The impact tool according to claim 34, further comprising:

said polymeric material being MINLON.

36. The impact tool according to claim 33, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

37. The impact tool according to claim 36, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

38. The impact tool according to claim 37, further comprising:

said polymeric material being MINLON.

39. The impact tool according to claim 33, said grip having a flange for hand protection.

40. The impact tool according to claim 39, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

41. The impact tool according to claim 40, further comprising:

said polymeric material being MINLON.

42. The impact tool according to claim 39, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

43. The impact tool according to claim 42, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

44. The impact tool according to claim 43, further comprising:

said polymeric material being MINLON.

45. An impact tool comprising:

A shaft having a striking end and a working end, said working end being a chisel; and

A shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area,

said working end being a chisel having a decreased included angle from a standard 65-70 degree included angle;

said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus in combination with said decreased included angle of said chisel to preserve at least 75% cutting effectiveness compared to cutting effectiveness of a chisel with a standard 65-70 degree included angle without said shaped polymeric material disposed adjacent to said

striking end.

46. The impact tool according to claim 45, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said shaped polymeric material so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

47. The impact tool according to claim 46, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

48. The impact tool according to claim 47, further comprising:

said polymeric material being MINLON.

49. The impact tool according to claim 46, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

50. The impact tool according to claim 49, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

51. The impact tool according to claim 50, further comprising:

said polymeric material being MINLON.

52. The impact tool according to claim 49, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

53. The impact tool according to claim 52, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

54. The impact tool according to claim 53, further comprising:

said polymeric material being MINLON.

55. The impact tool according to claim 49, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

56. The impact tool according to claim 55, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

57. The impact tool according to claim 56, further comprising:

said polymeric material being MINLON.

58. The impact tool according to claim 55, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

59. The impact tool according to claim 58, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

60. The impact tool according to claim 59, further comprising:

said polymeric material being MINLON.

61. The impact tool according to claim 55, said grip having a flange for hand protection.

62. The impact tool according to claim 61, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

63. The impact tool according to claim 62, further comprising:

said polymeric material being MINLON.

64. The impact tool according to claim 61, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

65. The impact tool according to claim 64, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

66. The impact tool according to claim 65, further comprising:

said polymeric material being MINLON.

67. An impact tool comprising:

a shaft having a striking end and a working end; and

a shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end, said shaped polymeric material having a striking end area of said shaped polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said shaped polymeric material

disposed adjacent to said striking end; and

having at least one cap for securing said shaped polymeric material to be impacted having a shape, said at least one cap comprised of a spall-inhibiting material having an aperture exposing said impact end area.

68. The impact tool according to claim 67, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

69. The impact tool according to claim 68, further comprising:

said polymeric material being MINLON.

70. The impact tool according to claim 67, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

71. The impact tool according to claim 70, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

72. The impact tool according to claim 71, further comprising:

said polymeric material being MINLON.

73. The impact tool according to claim 67, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

74. The impact tool according to claim 73, further comprising:

said shaped polymeric material being selected from the group of polymeric materials

reinforced by fiber or mineral.

75. The impact tool according to claim 74, further comprising:

said polymeric material being MINLON.

76. The impact tool according to claim 73, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

77. The impact tool according to claim 76, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

78. The impact tool according to claim 77, further comprising:

said polymeric material being MINLON.

79. The impact tool according to claim 73, said grip having a flange for hand protection.

80. The impact tool according to claim 79, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

81. The impact tool according to claim 80, further comprising:

said polymeric material being MINLON.

82. The impact tool according to claim 79, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

83. The impact tool according to claim 82, further comprising:

said shaped polymeric material being selected from the group of polymeric materials

reinforced by fiber or mineral.

84. The impact tool according to claim 83, further comprising:

said polymeric material being MINLON.

85. A removable cap to be placed on an impact tool having a striking end, comprising:

a shaped polymeric material to be impacted having a shape and disposed and secured adjacent to said striking end, said shaped polymeric material having a striking end area of said polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said removable cap material disposed adjacent to said striking end.

86. The removable cap according to claim 85, further comprising:

said shaped polymeric material being selected to have the further characteristic of redistributing the sound frequency on impact by a driving force on said impact tool to lower frequency ranges than said impact tool without said removable cap so that resulting sound and vibration is of lower dB, and less harmful frequency ranges to humans.

87. The removable cap according to claim 86, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

88. The removable cap according to claim 87, further comprising:

said polymeric material being MINLON.

89. The removable cap according to claim 86, further comprising:

at least one cap for securing said shaped polymeric material, said at least one cap being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

90. The removable cap according to claim 89, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

91. The removable cap according to claim 90, further comprising:

said polymeric material being MINLON.

92. The removable cap according to claim 89, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

93. The removable cap according to claim 92, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

94. The removable cap according to claim 93, further comprising:

said polymeric material being MINLON.

95. The removable cap according to claim 89, further comprising:

Said at least one cap being at least partially surrounded by a grip, said grip also partially encasing said shaft.

96. The removable cap according to claim 95, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

97. The removable cap according to claim 96, further comprising:

said polymeric material being MINLON.

98. The removable cap according to claim 95, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

99. The removable cap according to claim 98, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

100. The removable cap according to claim 99, further comprising:

said polymeric material being MINLON.

101. The removable cap according to claim 95, said grip having a flange for hand protection.

102. The removable cap according to claim 101, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

103. The removable cap according to claim 102, further comprising:

said polymeric material being MINLON.

104. The removable cap according to claim 101, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

105. The removable cap according to claim 104, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

106. The removable cap according to claim 105, further comprising:

said polymeric material being MINLON.

107. A removable cap to be placed on an impact tool having a striking end, comprising:

a shaped polymeric material being a polymeric material to be impacted having a shape and disposed adjacent to said striking end, said shaped polymeric material having a striking end area of said shaped polymeric material adjacent to said striking end and an impact end area to be impacted roughly opposite said striking end area, said shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said shaped polymeric material disposed adjacent to said striking end; and

having at least one overcap for securing said shaped polymeric material to be impacted having a shape, said at least one overcap comprised of a spall-inhibiting material having an aperture exposing said impact end area.

108. The removable cap according to claim 107, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

109. The removable cap according to claim 108, further comprising:

said polymeric material being MINLON.

110. The removable cap according to claim 107, further comprising:

said spall-inhibiting material being selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

111. The removable cap according to claim 110, further comprising:

said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

112. The removable cap according to claim 111, further comprising:

said polymeric material being MINLON.

113. A method of making a protective cap for an impact tool, said impact tool having a striking end, and a working end, comprising the following steps:

molding a shaped polymeric material of thickness and cross-sectional area and modulus interior to a cap having an interior cavity to accommodate said shaped polymeric material and being a cap that can be driven onto said striking end,

said interiorly shaped polymeric material having a striking end area adjacent to said striking end, and an impact end area to be impacted roughly opposite said striking end area,

said interiorly shaped polymeric material being of sufficient cross-sectional area for transmitting impact upon the impact end area, of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

114. The method according to the method of claim 113, said shaped polymeric material being a thermoplastic material.

115. The method according to the method of claim 113, said shaped polymeric material being a thermosetting material.

116. The method according to the method of claim 113, said shaped polymeric material being selected from the group of polymeric materials reinforced by fiber or mineral.

117. The method according to the method of claim 113, said polymeric material being MINLON.

118. The method according to the method of claim 113, said cap being made of a spall-inhibiting material selected from the group of ATAPRENE, HYTRIL, DELRIN, NYLON, POLYPROPYLENE, or DACRON.

119. The method according to the method of claim 113, said cap for securing said shaped polymeric material, being comprised of a spall-inhibiting material having an aperture exposing said impact end area.

120. The method according to the method of claim 119, said polymeric material being MINLON.

121. A method of manufacturing an impact tool having an impact end, which impact end has an impact end area, comprising the following steps:

mounting a shaped polymeric material of sufficient cross-sectional area for transmitting impact upon the impact end area from a striking end area roughly opposite said impact end area on said shaped polymeric material, said shaped polymeric material being of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end.

122. A method of manufacturing an impact tool having a head for receiving or conveying force and an impact end, which impact end has an impact end area, comprising the following steps:

mounting a shaped polymeric material of sufficient cross-sectional area for transmitting impact upon the impact end area from a striking end area roughly opposite said impact end area

on said shaped polymeric material, said shaped polymeric material being of sufficient thickness through said cross-sectional area, and of sufficient modulus to enable greater than 75% impact effectiveness compared to a similar impact tool without said polymeric material disposed adjacent to said striking end;

and thereafter, mounting a grip having an aperture through which said shaped polymeric material protrudes over said shaped polymeric material and at least partially onto said head.